ADDENDUM NUMBER 1

DATE: February 10, 2017

PROJECT: MSU Barnard Hall Room 105 Cleanroom Installation
PPA# 16-0002
(Consulting Design Solutions, Inc. Project # 1613)

BID DATE: February 23, 2017
2:00 PM, MST
Facilities Planning, Design and Construction
Plew Building, 6th & Grant
Bozeman, Montana

Bidders for the above project are hereby informed that the drawings and/or specifications are modified, corrected or supplemented as follows:

PROJECT NAME

I. The project name was changed near the completion of the construction documents. The project was formerly called “EPS Room 105 Cleanroom” or similar variation. Any references in the bidding documents to EPS 105 are here-by changed to “Barnard Hall Room 105”

DRAWINGS:

I. DRAWING SHEET M1.1 – PLUMBING PLANS
A. Refer to new acid waste piping from the new shower and floor drains: Revise the new acid waste piping from 4” to 3” pipe size. Connect new 3” acid waste to existing 3” stub near west wall of building chase. Slope at 1/4” per foot instead of 1/8” per foot. Connection to the existing 4” main and associated concrete work in the Building Chase will not be required. See attached sketch SKM1.

B. Refer to First Floor Plan – Piping, relocated gas line: 1-1/4” gas line is medium pressure (5psig) and fittings are required to be welded. For relocated gas piping, provide schedule 40 black steel with welded fittings. If the relocated wall does not interfere with the gas line, it can remain in place.

II. DRAWING SHEET M2.1 – HVAC PLANS
A. Refer to attached sketch SKM2, Partial Section B and Partial First Floor Plan – HVAC: revise ductwork from AHU to avoid existing piping in host room.

B. Refer to attached sketch SKM2, Partial Section D: install 16” exhaust air duct to fit below existing fire sprinkler piping, through wall to exterior, and to offset outside to reach necessary height to align with intake of exhaust fan.

C. Refer to First Floor Plan – HVAC, 16” exhaust duct through building chase wall: Install 16” exhaust air duct through wall to avoid existing electrical conduit. Coordinate with electrical contractor for relocation of conduit(s) on existing unistrut.
III. **DRAWING SHEET M2.2 – HVAC PLANS – ALTERNATE BID**
   A. Section Tags Clarification: All section tags on this sheet reference sheet M2.2, not M2.1 as shown.

IV. Refer to attached sketch SKM3, Partial Section B and Partial First Floor Plan – HVAC: revise ductwork from AHU to avoid existing piping in host room.

V. **DRAWING SHEET M3.1 – DETAILS AND SCHEDULES**
   A. Refer to attached sketch SKM4, Upblast Lab Hood Exhaust Detail, 1/M3.1: Provide exhaust fan curb that is a minimum of 12” above roof.
   B. Refer to Plumbing Fixture Schedule: Revise floor drain FD-1 waste size to 3” in lieu of 4”.
   C. Refer to Water Source Heat Pump Schedule: Clarification on Note 3: Refrigeration piping warranty is to be provided by the mechanical contractor, not the equipment supplier.
   D. Roof Equipment Detail on M3.1 is mislabeled as 4/M2.1 and needs to read 4/M3.1.

VI. **DRAWING SHEET ED1.1 – OVERALL MAIN LEVEL PLAN – ELECTRICAL DEMOLITION**
   A. Refer to attached sketch SKE1 and SKE2 for the following revisions:
      a. The existing panel ‘1N8L’ which feeds the existing receptacles within room 105 is shown within sketch(es). Contractor shall plan on providing a new homerun from one of the receptacles that are to remain to allow demolishing those shown.
      b. Additional information and notes are shown on the attached sketch(es) to fully remove one (1) conduit back to panel EPS105 and relocate two (2) existing conduits within the mechanical chase to allow room for the 16” exhaust duct to be routed from room 105 to the mechanical chase. Coordinate with mechanical contractor.

**SPECIFICATIONS:**

I. **SPECIFICATION 211300 – AUTOMATIC SPRINKLER SYSTEM**
   A. Refer to 2.4, A, 1: Clarification: No exposed metal components are allowed in the cleanroom. Provide sprinkler heads in cleanroom with all metal surfaces or components coated with acid resistant epoxy coating.

II. **SPECIFICATION 220529 AND 230529 – MECHANICAL SUPPORTS**
   A. Project seismic information based on original building documentation is as follows:
      1. Design Category: D
      2. Risk Category: III
      3. Importance Factor: 1.25

III. **SPECIFICATION 233100 – DUCTWORK**
   A. Refer to 2.4, Revise as follows:
      1. PVC ductwork does not meet the smoke developed ratings for use in the building. Delete all reference in the project documents to PVC ductwork inside the building. PVC ductwork is acceptable outside the building, on the discharge side of the exhaust fan as long as it is painted with a latex primer and 2 coats of latex paint to provide UV protection. Polypropylene ductwork is accepted as an approved equal to PVC on the discharge side of the exhaust fan, outside the building.
      2. Provide exhaust ductwork inside the building of CPVC solvent jointed products meeting the following specifications.
         a. Provide Harrison SuperDuct CPVC, or approved equal.
         b. Provide materials meeting ASTM-D-1784, Cell Class 23437-B
         c. Provide exhaust ductwork to meet FM-4910 or ASTM E 84 or UL-723 flame spread index of less than 25 and smoke developed index of less than 50.
d. Install per manufacturer’s instructions for joining and support.

3. Fume hood and dry-down box are equipped with polypropylene duct connections. Provide a transition from these connections using flame retardant polypropylene to CPVC connectors.

4. At contractor option, Polyvinylidene Fluoride (PVDF) flame retardant polypropylene material may be used in the building in lieu of CPVC. PVDF ductwork shall meet the following standards:
   a. Exhaust ductwork is required to meet FM-4910 or ASTM E 84 flame spread index of less than 25 and smoke developed index of less than 50.
   b. Material is required to be UV resistant.
   c. Provide PVDF System as manufactured by Simtech, PVDF ProDuct or approved equal.
   d. Provide seamless, extruded material with molded, socket fittings.
   e. Provide joining system with hot air welding as required by the manufacturer.
   f. Provide support and installation as required by the manufacturer.

5. Flame retardant polypropylene products meeting the above flame and smoke requirements will be considered, manufacturers seeking prior approval are required to submit supporting documentation.

6. Exhaust duct materials are required to be acid resistant to the chemicals used in the project:
   a. Nitric acid (Concentrated)
   b. Hydrochloride acid (Concentrated)
   c. Hydrofluoric acid (Concentrated)
   d. Oxalic Acid (Concentrated)
   e. Hydrogen Bromide acid.

PRIOR APPROVALS:
Approval is given for the following items for general conformance to the project requirements. It is the responsibility of the contractor and equipment supplier to provide equipment and products that meet all the requirements of the plans and specifications. The Mechanical Engineer reserves the right to reject any product that does not fully meet the project requirements regardless of prior approval.

<table>
<thead>
<tr>
<th>Specification Section</th>
<th>Item</th>
<th>Approved Manufacturer</th>
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<tbody>
<tr>
<td>224200</td>
<td>Emergency Shower</td>
<td>Guardian</td>
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<tr>
<td></td>
<td>Mixing Valve</td>
<td>Guardian</td>
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<tr>
<td></td>
<td>Sink Faucet</td>
<td>Symmons</td>
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<tr>
<td>221010</td>
<td>Non-metallic RO piping</td>
<td>Spears Low Extractable PVC</td>
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<tr>
<td>220529 &amp; 230529</td>
<td>Vibration and Seismic</td>
<td>Vibro-Acoustics</td>
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<td>233100</td>
<td>Ductwork</td>
<td>Spiral-Tech</td>
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<td>237313</td>
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<td>Daikin Applied*</td>
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<td></td>
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<td>Temptrol*</td>
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*Provided equipment meets all performance, filtration and dimensional requirements.
2. EXISTING CONDUITS Stubbed through the floor that are not reused or are abandoned shall be cut at the floor surface, ground flush and filled with grout. Floor finish shall match that of existing.

3. PROVIDE NEW CONDUCTORS in EXISTING RACEWAYS that are feasible to re-use. Use existing backboxes with new devices in appropriate areas.

4. ALL WORK shall be performed in strict accordance with NEC, state, and local building code.

5. RETURN ANY USABLE/ SALVAGEABLE ELECTRICAL DEVICES TO OWNER including but not limited to: light fixtures, electrical heaters, panels, circuit breakers etc. Confirm with owner items that are desirable for retention.

6. ALL ITEMS ON DEMOLITION PLANS and provided with a (X) are to be removed unless noted otherwise. Items provided with an (E) are to remain. Note — Items shown in the demolition plans are based on “Existing As-Builts”. Additional electrical items may be encountered that are not shown.

7. ANY WORK that requires power disruptions shall be scheduled, minimum of 72 hours ahead of time, and approved by the owner. All work shall be performed with no disruption of the owner’s business.

8. NUMBER DESIGNATIONS ADJACENT TO THE RECEPTACLES WITHIN ROOM 105 REFER TO THE CIRCUITS THEY ARE FED WITH FROM PANEL ‘1NBL’.

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**ELECTRICAL NOTES**

1. REMOVE EXISTING SURFACE MOUNTED DISCONNECT AND RECEPTACLE back to panel EPS105, including junction boxes on the east and west side of the wall and the 2” conduit back to the panel.

2. REMOVE 1” conduit and LB’S from entering 105 south at least 20’-0”. The intent is to allow the two (2) 1 ½” conduits above to be offset and slid down as far as possible on the existing uni-strut.

3. RECONFIGURE THE TWO (2) WALL-MOUNTED 1 ¾”, 100A FEEDER CONDUITS TO ALLOW THE 16” EXHAUST DUCT TO BE ROUTED OUT OF ROOM 105 AND IN TO THE MECHANICAL CHASE just below the deck. Offset the two (2) conduits down as far as existing piping allows to insures the exhaust duct may be routed over them and in to the mechanical chase.

4. RECEPTACLES SHARE A RACEWAY BETWEEN JUNCTION BOXES FOR MULTIPLE CIRCUITS back to panel ‘1NBL’. PROVIDE A NEW ¾” EMT CONDUIT from one of the remaining receptacles back to panel ‘1NBL’ to allow eliminated the remainder of the receptacle junction boxes.